CLAIMS:

1. (currently amended) A reagent for preparing a scintigraphic imaging agent comprising a specific binding compound that binds to a target site in a mammalian body and comprises a peptide of from 4 to 100 amino acids having a molecular weight of less than 10,000 daltons, the compound being covalently linked to a radiolabel complexing moiety having a formula selected from the group consisting of:

I.

$$R^1—CO—(\text{amino acid})^1 - (\text{amino acid})^2—Z$$

wherein

(amino acid)^1 and (amino acid)^2 are each independently any primary α- or β- amino acid that does not contain a thiol group;

Z is selected from the group consisting of cysteine, homocysteine, isocysteine, penicillamine, 2-mercaptoethylamine and 3-mercaptopropylamine;

R^1 is lower (C^1–C^4) alkyl or a covalent linkage to the compound;

wherein, when Z is cysteine, homocysteine, isocysteine or penicillamine, Z comprises a carbonyl group covalently linked to a hydroxyl group, a NR^3R^4 group wherein R^3 and R^4 are each independently H or lower (C^1–C^4) alkyl, an amino acid, or a peptide comprising 2 to 10 amino acids;

and

II.

$Y—(\text{amino acid})^2—(\text{amino acid})^1—NHR^2$

wherein

Y is selected from the group consisting of cysteine, homocysteine, isocysteine, penicillamine, 2-mercaptoacetate and 3-mercaptopropionate;

$(\text{amino acid})^1$ and $(\text{amino acid})^2$ are each independently any primary α- or β- amino acid that does not contain a thiol group;

R^2 is selected from the group consisting of H, a lower (C^1–C^4) alkyl, and a covalent linkage to the compound;

wherein, when Y is cysteine, homocysteine, isocysteine or penicillamine, Y comprises an amino group covalently linked to -H, an amino acid, or a peptide comprising 2 to 10 amino acids; and

wherein, the moiety is linked to the compound through R^1, R^2, a sidechain group of $(\text{amino acid})^1$, a sidechain group of $(\text{amino acid})^2$, an amino group of cysteine, homocysteine, isocysteine or penicillamine, or a carboxyl group of cysteine, homocysteine, isocysteine or penicillamine.

2. (previously presented) The reagent of claim 1 wherein the radiolabel complexing moiety comprises

(amino acid)^1 —(amino acid)^2 —(amino thiol)

or

(mercaptocarboxylic acid)—(amino acid)^2—(amino acid)^1

wherein

(amino acid)^1 and (amino acid)^2 are each independently any primary α- or β-amino acid;

(amino thiol) is selected from the group consisting of cysteine, isocysteine, homocysteine, penicillamine, 2-mercaptoethylamine and 3-mercaptopropylamine; and

(mercaptocarboxylic acid) is selected from the group consisting of cysteine, isocysteine, homocysteine, penicillamine, 2-mercaptoacetic acid and 3-mercaptopropionic acid.

3. (previously presented) The reagent of Claim 2 wherein the radiolabel complexing moiety comprises -Gly-Gly-Cys or Cys-Gly-Gly-.

4.-5. (cancelled)

6. (previously presented) The reagent of Claim 1 wherein the compound and the moiety are linked through one or more amino acids.

7. (previously presented) A scintigraphic imaging agent comprising the reagent according to Claim 1 wherein the radiolabel complexing moiety is bound to a radiolabel.

8. (original) The reagent of Claim 7 wherein the radiolabel is technetium-99m.

9.-10. (cancelled)

11. (original) A complex formed by reacting the reagent of Claim 1 with technetium-99m in the presence of a reducing agent.

12. (original) The complex of Claim 11, wherein the reducing agent is selected from the group consisting of a dithionite ion, a stannous ion and a ferrous ion.

13. (original) A complex formed by labeling the reagent of Claim 1 with technetium-99m by ligand exchange of a prereduced technetium-99m complex.

14. (original) A kit for preparing a radiopharmaceutical preparation, said kit comprising a sealed vial containing a predetermined quantity of the reagent of Claim 1 and a sufficient amount of reducing agent to label the reagent with technetium-99m.

15. (original) A method for labeling a reagent according to Claim 1 comprising reacting the reagent with technetium-99m in the presence of a reducing agent.

16. (original) The method of Claim 15, wherein the reducing agent is selected from the group consisting of a dithionite ion, a stannous ion and a ferrous ion.

17. (previously presented) A method for imaging a site within a mammalian body comprising administering an effective diagnostic amount of the reagent of Claim 8 and detecting a radioactive signal from the technetium-99m localized at the site.

18. (cancelled)

19. (previously presented) The reagent of Claim 1 wherein the peptide comprises a linear peptide or a cyclic peptide.

20. (previously presented) The reagent of Claim 1 wherein the compound binds to a thrombus site.

21. (previously presented) The reagent of Claim 1 wherein the compound binds to a site of an infection.

22-37. (cancelled)

38. (previously presented) A method according to Claim 17 wherein radiolabel complexing moiety comprises

$$(\text{amino acid})^1\text{-}(\text{amino acid})^2\text{-}(\text{amino thiol})$$

or

(mercaptocarboxylic acid)—(amino acid)^2—(amino acid)^1

wherein

(amino acid)^1 and (amino acid)^2 are each independently any primary α- or β-amino acid;

(amino thiol) is selected from the group consisting of cysteine, isocysteine, homocysteine, penicillamine, 2-mercaptoethylamine and 3-mercaptopropylamine; and

(mercaptocarboxylic acid) is selected from the group consisting of cysteine, isocysteine, homocysteine, penicillamine, 2-mercaptoacetic acid and 3-mercaptopropionic acid.